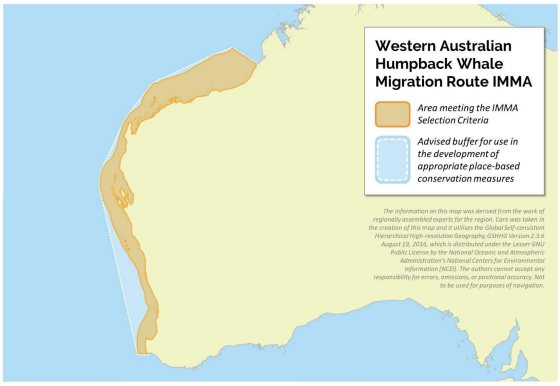

Area Size

293,110 km^2

Qualifying Species and Criteria

Humpback whale – *Megaptera novaeangliae*

Criterion C1, C3

Marine Mammal Diversity

Dugong dugon, Orcaella heinsohni, Sousa sahulensis, Stenella longirostris, Tursiops aduncus, Tursiops truncatus, Orcinus orca, Pseudorca crassidens, Balaenoptera musculus, brevicauda, Eubalaena australis, Balaenoptera physalus, Physeter macrocephalus, Balaenoptera edeni

Summary

The Western Australian coastline is a known migration route for the Western Australian humpback whale population (IWC breeding stock D; BSD). The area has been selected due to our historical understanding of the movement of humpback whales during commercial whaling (Chittleborough 1965, Dawbin 1966), with more recent knowledge from aerial surveys (Bannister 1994; Bannister & Hedley 2002, Hedley et al. 2011, Salgado Kent et al. 2012), boat surveys (Jenner, 2001) and satellite tagging (Gales et al. 2010, Thums et al. 2018, How et al. 2020). Humpback whales undertake a consistent annual migration from high latitude Antarctic feeding grounds to low latitude breeding grounds. Off the Western Australian coastline, the migration occurs between June and November from temperate waters off South West Australia to the

Western Australian Humpback Whale Migration Route IMMA

Summary cont....

low latitude tropical breeding grounds in the Kimberley, North West Australia (15°–18°S; see IMMA Northwest Australian Humpback Whale Breeding Area). The migration route along the coast of Australia occurs within the 200m bathymetric contour with many animals traveling in coastal waters within 5 nautical miles of shore. The migration route encompasses many different habitat types (e.g. seagrass, rocky seabed, sand) and the area is used by a variety of marine mammal taxa (e.g. dugong, dolphins, whales and seals) that also use these coastal habitats.

Criterion C: Key Life Cycle Activities

Sub-Criterion C1: Reproductive Areas

Humpback whales off the Western Australian (WA) coastline migrate to discrete breeding areas in the Kimberley region during austral winter. However, the migration encompasses a spectrum in breeding behaviour along the WA coastline that can include early calving during the northern migration as well as nursing, resting and breeding behaviour on the southern migration. Initial evidence of calving on the northern migration is provided by whaling data from

Figure 1 – Humpback whales travelling through Geographe Bay in south west Australia. Photo credit: Chandra Salgado Kent.

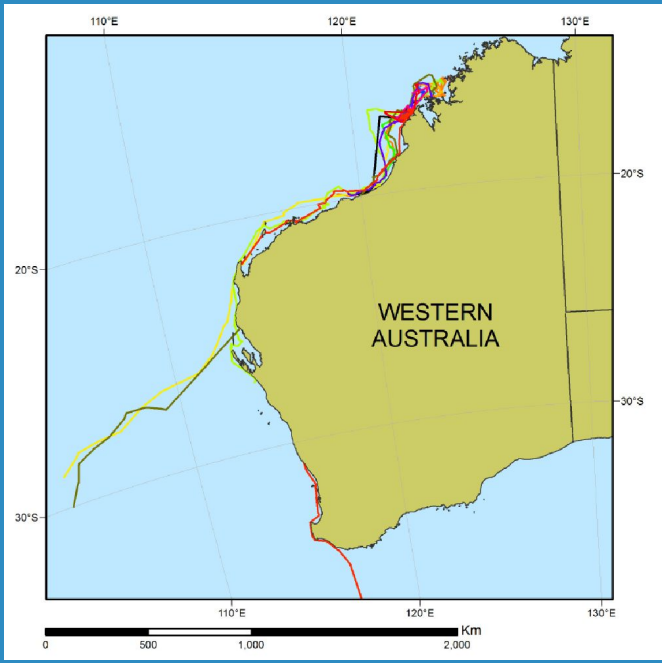

Figure 2 – Individual movements of 23 southbound humpback whales tagged between Camden Sound and Pender Bay, Western Australia late August and early September 2009. Source: Gales et al. 2019

the 1950's and was reported to occur as far south as Albany (35°S) (Chittleborough, 1953, 1965). Boat-based surveys (Jenner et al. 2001) and aerial surveys (Irvine et al. 2018) support these initial observations of calving on migration with increasing evidence of more calves born on the Ningaloo Coast near Exmouth Gulf (Irvine et al 2018). Exmouth Gulf is also identified as a resting area for humpback whales (in particular mothers nursing calves) between July and November. Evidence for this was initially from 1950'swhaling data (Chittleborough, 1953) and more recently from boat-based and aerial surveys that report resting behaviour occurring from a few hours to a few weeks (Jenner & Jenner 2005; Irvine et al. 2018; Salgado Kent and Irvine 2018; Salgado Kent 2019). The majority of humpback whales use Exmouth Gulf as a resting area between late August and late October, during their southwards migration from the breeding grounds to the Antarctic feeding grounds (Chittleborough, 1953, Jenner et al. 2001). Mothers and their calves utilize the sheltered waters of Exmouth Gulf for resting and nursing, during which time humpback whale calves spend approximately 20% of their time suckling (Videsen et al. 2017).

Sub-Criterion C3: Migration Routes

The Western Australian coastline is well established as a migration route for the Western Australian humpback whale population (IWC BSD), between low-latitude winter breeding grounds and high-latitude summer feeding areas in the Antarctic. Off the Western Australian coastline, their northward migration to the Kimberley breeding grounds typically occurs between June and August and their southward migration back to Antarctic feeding areas between August and November. There is temporal segregation of age/sex classes during migration typically with females in late lactation migrating first, followed by immature whales, mature males and 'resting' females that have not recently calved, and lastly late-pregnant females. This pattern is generally reversed during the southward migration from the low latitude breeding grounds (Chittleborough 1965; Dawbin 1966; Dawbin 1997). The migration has been well described from the 1940's Discovery Tagging program (Raynor 1940), during commercial whaling (Chittleborough 1965), and from more recent vessel surveys (Jenner et al. 2001), systematic aerial surveys (Bannister 1994; Bannister & Hedley 2002, Hedley et al. 2011, Salgado Kent et al. 2012) and satellite tagging studies (Gales et al. 2010, Bestley et al. 2019, How et

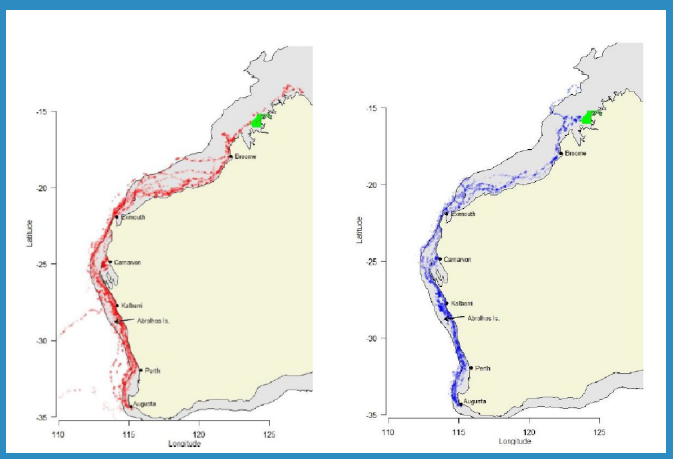

Figure 3 – Movements of females (red) and male (blue) satellite tagged humpback whales off the Western Australian coast and the location of the Camden Sound Marine Park (green).

al. 2020). Humpback whales do not generally migrate further offshore than the 200m bathymetry off the entire Western Australian coastline based on all the available data; except in some specific areas off Ningaloo Reef where the continental slope occurs close to the coast.

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